

NO. 2172346
SHEET 0
OF 16

DIAGNOSTIC TEST

DIPAL NAME IS IX06

TITLE INDIRECT ADDRESSING TEST - DX06
MACH. TYPE 1620-1 BY HNJ APPR. DATE

ENGINEERING CHANGE HISTORY

E/C NO.	DATE	SHEETS AFFECTED
404980	5-7-64	1 - 16

E/C NO.	404980						
DATE	5-7-64						

DTX06
1620-1 INDIRECT ADDRESSING TEST
DIPAL NEAME DX06

PROGRAM DESCRIPTION

1. Purpose

This program tests the circuitry used by the indirect addressing feature on the 1620-1.

2. Test Method

The program is a fault detection test, and is divided into short independent routines. There are two common error routines, and any detected error will exit to one of these routines. Not all instructions are tested for correct indirectly addressed operation, since most operations use common circuitry. The program deck is in standard SPS format and uses the SPS loader.

3. Modifications

The program contains the necessary linkage to make it compatible with the DIPAL monitor.

4. Units of System Required

This test requires the 1620 CPU and the 1622 card reader or 1621 Paper Tape Reader.

5. E/C Level

This test applies to all level and suffix machines with the indirect addressing feature.

LOADING INSTRUCTIONS

1. Clear Core

2. Load test deck from 1622 by pushing load button or from 1621 by inserting 36 00000 00300R-S

To reproduce the paper tape,

Insert 3600000 00300, Release, and
Press "SIE" button. After tape has loaded, insert

LOC
00000 35 00000 00200
00012 41 00514 00000
00024 16 00013 0049
00036 16 00001 00041
00048 49 00514

Release/Start

When MAR has reached 05080, stop by pressing "SCE" button, reset, and insert 35 19999 00200.

Release/start

LOADING INSTRUCTIONS - Continued

3. Machine will halt with 00011 in MAR. Press START to execute program.

OPERATING INSTRUCTIONS

1. No manual intervention other than the setting of the Console Switches is required for normal operation.

2. Console Program Switches

The switches have the following functions in this program:

Switch 1	ON	Bypass all error routines.
	OFF	Test Switch 3 on error
Switch 2	ON	Loop in test routine
	OFF	Continue to next routine
Switch 3	ON	Halt on error if Switch 1 off
	OFF	Typeout on error if Switch 1 off
Switch 4	ON	Repeat program
	OFF	Load next program from 1622

3. Every 1000 passes, the test name and number of passes will be typed out. At the completion of any pass and Switch 4 OFF, the test name and number of passes complete will be typed out and the Card Reader will be selected to load the next program.

4. Data Check Switches

The program does not test the status of the Data Check Indicators. It is recommended that the program be run with the Data Check Switches ON.

5. Normal Program Halts

The only normal Halt is at location 00000 in the SPS loader. Press START to execute the program.

ERROR INFORMATION

1. Error Halts

There is one error halt in this program:

03014 Detected error. Display 1R 2 for location +12 of error exit.

2. Error Typeouts

Error typeouts will provide the location of the first instruction in the failing routine, and the instruction being tested.

2. Continued

EXAMPLE:

1/A FAILURE, LOC 01640
A 03595 03664

01640 is the location of the first instruction in the routine, the instruction being tested is an ADD with the "P" address indirectly addressed.

3. If Divide is not installed,

Insert 36 02588 00100
49 00538 R-S

Then type in 02734 R-S

Card number 113 (Columns 76-80) can be changed by punching 2734 in columns 4, 5, 6 & 7.

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C

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A

Start

538

Type Test
Name

574

Test
Return
Carriage

654

BTM

Test
No Operat-
ion

BB

754

BTM

Test
Set Flag

BB

854

BTM

Test
Branch
No Flag

BB

940

BTM

Test
Branch No
Record MK

BB

1026

BTM

Test
Branch
On Digit

BB

Page 2

B

Page 2

D

Page 2

B

BTM

Test
Transmit
Record

BB

1210

BTM

Test
Branch
Back

BB

1334

BTM

Test
Add
Immediate

BB

1444

BTM

Test
Add

BB

2342

BTM

Test
Compare

BB

2428

BTM

Test
Multiply

BB

2624

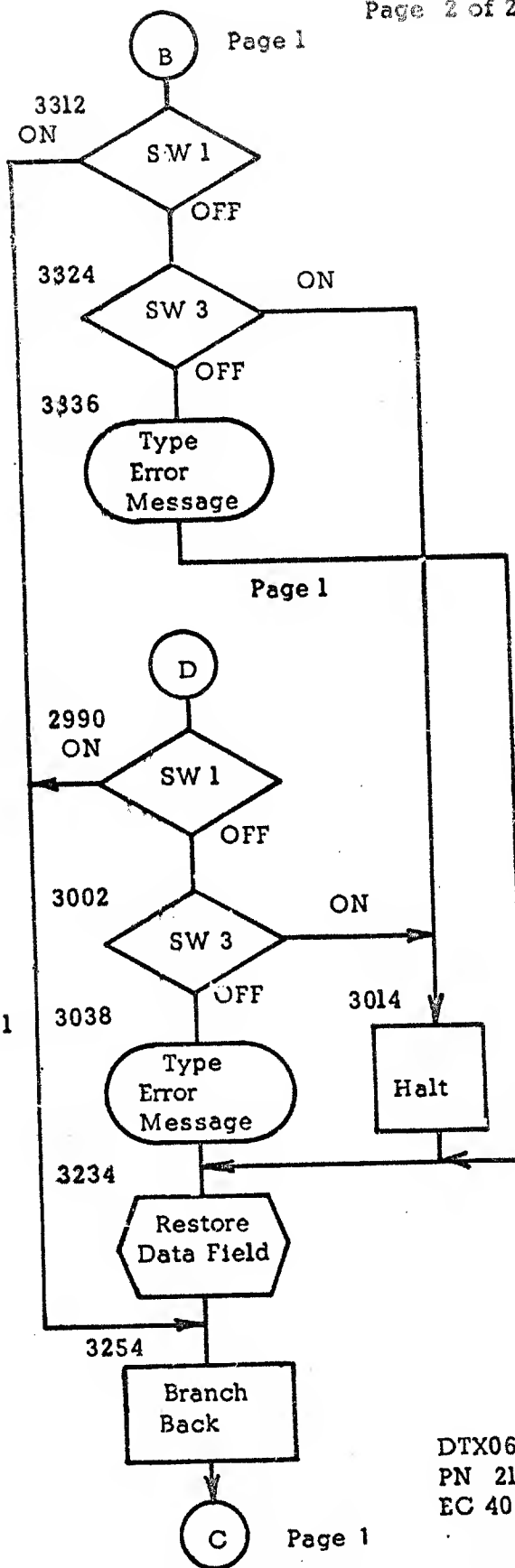
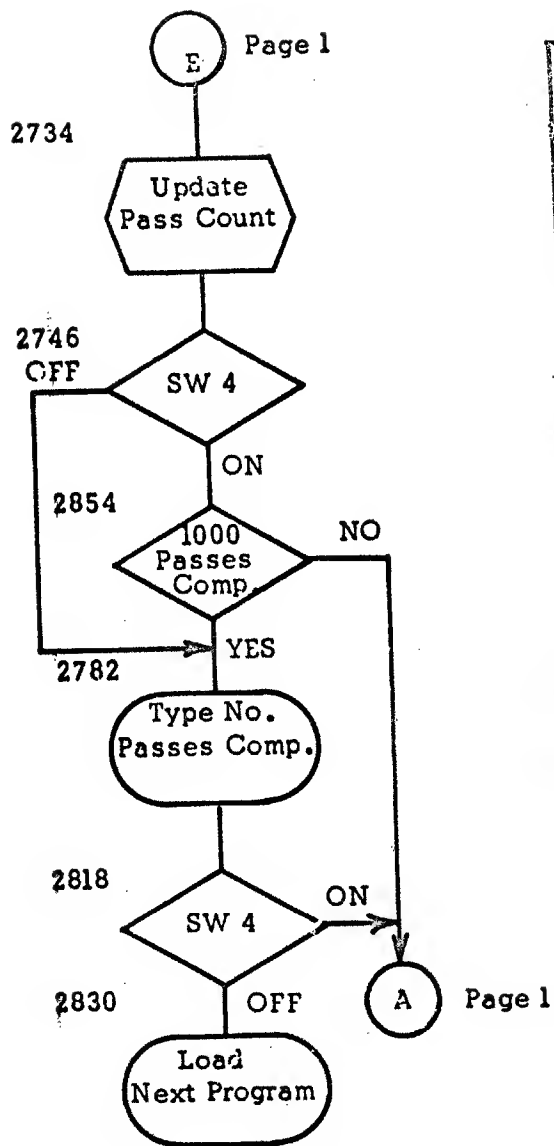
BTM

Test
Divide

BB

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E



```

*          DTX06,1620-1 I/A TEST
*
00500
00501      00004
00512      00005 -5080
00514 45 00538 18117
00526 49 18000 00000
00538 34 00654 00102
00550 31 10000 03581
00562 39 00611 00100
00574 34 00000 0010K

00586 16 00539 000M9
00598 49 00654 00000
00611      00722

00654 41 0000- 0000-
00656      00001
00661      00001
00666 47 00690 00800
00678 17 03312 -0714
00690 46 00654 00200
00702 49 00754 00000

00718      00905 -0654
00719      00001
00721      00004
00728      00002
00731      00004
00739      00002
00740      00004
00745      00004
00753      00002

00754 32 00000 0000-
00761      00001
00766 47 00790 00800
00778 17 03312 -0814
00790 46 00754 00200
00802 49 00854 00000

00818      00005 -0754
00819      00001
00821      00009
00839      00002
00840      00004
00845      00004
00853      00002

00854 44 00878 0361N
00866 49 00890 00000
00878 17 02990 -0914
00890 46 00854 00200

*          DTX06,1620-1 I/A TEST
*
DORG 500
DAC 4,DX06,
DSA EVNO
START BNR **24,18117
B 18000
RCTY T1
TR 10000,KA1-4,, SAVE WORKING DATA
WATY NAME,,, TYPE TEST NAME
RCTY T1,, TEST FOR I/A,WILL ADDRESS
*          ADD TABLE IF I/A CYCLE TAKEN
TFM $START+25,49,10
B T1
NAME DAC 22,DTX06,1620-1 I/A TEST'
*
*          TEST THAT NOP WILL NOT I/A BY A R/M
*          IN BOTH P AND Q FIELDS
T1 NUP ,,611, FLAG IN P2 AND Q7
DC 1,1,-9, RM IN P2
DC 1,1,-4, RM IN Q7
HNI **24,800,, TEST FOR NO MAR CK
BTM ER2,**36,, GO TO ERROR RTN
BC2 T1,, LOOP IF SW2 ON
B T2
*          ERROR MESSAGE
DSA T1
DSC 1,0
DAC 4,NOP,
DSC 2,22,
DAC 4,000,
DC 2,0
OSC 4,0022,
DAC 4,000,
DC 2,0'
*
*          TEST THAT Q FIELD OF SF OPN WILL NOT I/A
T2 SF 0,0,11, I/A Q ADDRESS
DC 1,1,-4, R/M IN Q7
BNI **24,800,, TEST FOR NO MAR CK
BTM ER2,**36,, GO TO ERROR ROUTINE
BC2 T2,, LOOP IF SW2 ON
B T3
*          ERROR MESSAGE
OSA T2
DSC 1,0
DAC 9,SF 0000,
DC 2,0
DSC 4,0022
DAC 4,000,
DC 2,0'
*
*          TEST THAT Q FLD OF BNF WILL I/A
T3 BNF **24,-KA7,, NO BRANCH IF I/A
B **24,,, OK
BTM ERR,**36,, GO TO ERROR ROUTINE
BC2 T3,, LOOP IF SW2

```

00902 49 00940 00000

00918 00005 -0854
00919 00001
00921 00004
00932 00005 -0878
00937 00005 -361N
00938 00001

00940 45 C0964 0362-
00952 49 00976 00000
00964 17 02990 -1000
00976 46 00940 00200
00988 49 01026 00000

01004 00005 -0940
01005 00001
01007 00004
01018 00005 -0964
01023 00005 -362-
01024 00001

01026 43 0501K 0365B
01038 17 02990 -1074
01050 46 01026 00200
01062 49 01100 00000

01078 00005 -1026
01079 00001
01081 00004
01092 00005 -501K
01097 00005 -3658
01098 00001

01100 16 03671 -0000
01112 31 03666 0362N
01124 24 03664 03671
01136 46 01160 01200
01148 17 02990 -1184
01160 46 01100 00200
01172 49 01210 00000

01188 00005 -1100
01189 00001
01191 00004
01202 00005 -3666
01207 00005 -362N
01208 00001

01210 17 01234 000-0
01222 49 01246 00000
01234 42 0000- 0000-
01236 00001
01241 00001

B T4
* ERROR MESSAGE
DSA T3
DSC 1,0
DAC 4,BNF ,
DSA T3+24,-KA7
DC 1,0

*
* TEST THAT Q FLD OF BNR WILL I/A
T4 BNR **24,-KAB,, NO BRANCH IF I/A
B **24,,, OK
BTM ERR,**36,, GO TO ERROR ROUTINE
BC2 T4,,, LOOP IF SW2 ON
B T5

* ERROR MESSAGE
DSA T4
DSC 1,0
DAC 4,BNR ,
DSA T4+24,-KAB
DC 1,0

*
* TEST THAT P FIELD OF BD WILL I/A
T5 BD -BQ1,KD1,, SHOULD BRANCH TO 5024,RETURN TO T5+24
BTM ERR,**36,, GO TO ERROR ROUTINE
BC2 T5,,, LOOP IF SW2 ON
B T6

* ERROR MESSAGE
DSA T5
DSC 1,0
DAC 4,BD ,
DSA -BQ1,KD1
DC 1,0

*
* TEST THAT Q FLD OF TR WILL I/A
T6 TFM KWK,0,, CLEAR WORK FLD
TR KWK-5,-KA9,, TRANSMIT REC OF -099999
C KD2,KWK,, CHECK FOR CORRECT RESULT
BE **24
BTM ERR,**36,, GO TO ERROR ROUTINE
BC2 T6,,, LOOP IF SW2 ON
B T7

* ERROR MESSAGE
DSA T6
DSC 1,0
DAC 4,TR ,
DSA KWK-5,-KA9
DC 1,0

*
* TEST THAT BB DOES NOT TAKE I/A CYCLE
T7 BTM **24,0,10, SETUP FOR BB TEST
B **24,,, SKIP OUT
BB ,,511, R/M IN P2 AND Q7,MAR CK IF I/A
DC 1,0,-9, R/M FOR P2
DC 1,0,-4, R/M FOR Q7

01246 47 01270 00800
 01258 17 03312 -1294
 01270 46 01210 00200
 01282 49 01334 00000

01298 00005 -1210
 01299 00001
 01301 00004
 01308 00002
 01311 00004
 01319 00002
 01320 00004
 01325 00004
 01333 00002

01334 16 03671 -9696
 01346 11 03671 0R690
 01358 46 01382 01200
 01370 17 02990 -1406
 01382 46 01334 00200
 01394 49 01432 00000

01410 00005 -1334
 01411 00001
 01413 00004
 01424 00005 -3671
 01425 00001
 01429 00004
 01430 00001

01432 32 01537 00000
 01444 26 03671 03658
 01456 21 03671 03064
 01468 46 01492 01200
 01480 17 02990 -1516
 01492 46 01444 00200
 01504 49 01542 00000

01520 00005 -1444
 01521 00001
 01523 00004
 01534 00005 -3671
 01539 00005 -3664
 01540 00001

01542 26 03671 03658
 01554 21 03671 0359-
 01566 46 01590 01200
 01578 17 02990 -1614
 01590 46 01542 00200
 01602 49 01640 00000

01618 00005 -1542
 01619 00001
 01621 00004
 01632 00005 -3671
 01637 00005 -359-

BNI **24,800,, TEST FOR MAR CK
 BTM ER2,**36,, GO TO ERROR ROUTINE
 BC2 T7,, LOOP IF SW2 ON
 B T8

* ERROR MESSAGE

DSA T7
 DSC 1,0
 DAC 4,86,
 DSC 2,22
 DAC 4,000,
 DC 2,0
 DSC 4,0022
 DAC 4,000,
 DC 2,0

* TEST THAT AM WITH NEG Q WONT I/A

T8 TFM KWK,9696,, SET WORK AREA
 AM KWK,9696,811, SUM SHOULD BE ZERO
 BZ **24,
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T8,, LOOP IF SW2 ON
 B T9-12

* ERROR MESSAGE

DSA T8
 DSC 1,0
 DAC 4,AM,
 DSA KWK
 DSC 1,0
 DC 4,-9696
 DC 1,0

* TEST THAT FLAG IN Q9 WILL NOT I/A

T9 SF T9+93,, SET FLAG IN ERROR MESSAGE
 TF KWK,KD1,, SET WORK AREA
 A KWK,KD2,9, FLAG IN Q9,NO I/A
 BZ **24,, SHOULD BE ZERO
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T9,, LOOP IF SW2 ONP
 B T10

* ERROR MESSAGE

DSA T9
 DSC 1,0
 DAC 4,A,
 DSA KWK,KD2
 DC 1,0

* TEST THAT Q ADR OF ADD WILL I/A

T10 TF KWK,KD1,, SET WORK AREA
 A KWK,-KA2,, Q I/A
 BZ **24,, SHOULD BE ZERO
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T10,, LOOP IF SW2 ON
 B T11

* ERROR MESSAGE

DSA T10
 DSC 1,0
 DAC 4,A,
 DSA KWK,-KA2

01638 000Q1

01640 26 03671 03658
01652 21 0359N 03664
01664 46 01688 01200
01676 17 02990 -1712
01688 46 01640 00200
01700 49 01738 00000

01716 C3005 -1640
01717 00001
01719 00004
01730 00005 -359N
01735 00005 -3664
01736 00001

01738 26 03671 03658
01750 K1 03671 03664
01762 46 01798 01200
01774 17 02990 -1822
01786 39 01849 00100
01798 46 01738 00200
01810 49 01894 00000

01826 00005 -1738
01827 00001
01829 00004
01840 00005 -3671
01845 00005 -3664
01846 00001
01849 00023

01894 26 03671 03658
01906 21 0361- 0360N
01918 46 01954 01200
01930 17 02990 -1978
01942 39 02005 00100
01954 46 01894 00200
01966 49 02048 00000

01982 00005 -1894
01983 00001
01985 00004
01996 00005 -361-
02001 00005 -360N
02002 00001
02005 00022

02048 26 03671 03658
02060 21 0505J 0506K
02072 46 02096 01200
02084 17 02990 -2120
02096 46 02048 00200
02108 49 02146 00000

DC 1,'

*
* TEST THAT P ADR OF ADD WILL I/A
T11 TF KWK,KD1,, SET WORK AREA
A -KA3,KD2,, P I/A
BZ **24,,, SHOULD BE ZERO
BTM ERR,**36,, GO TO ERROR ROUTINE
BC2 T11,,, LOOP IF SW2 ON
B T12

* ERROR MESSAGE

DSA T11
DSC 1,0
DAC 4,A ,
DSA -KA3,KD2

DC 1,'

*
* TEST ADD WITH FLAG ON TENS POS OF OP CODE
T12 TF KWK,KD1,, SET WORK AREA
A KWK,KD2,0, FLAG ON 2 OF OP CODE
BZ **36,,, SHOULD BE ZERO
BTM ERR,**48,, GO TO ERROR ROUTINE
WATY SPEC,,, TYPE SPECIAL MESSAGE IF ERROR
BC2 T12,,, LOOP IF SW2 ON
B T13

* ERROR MESSAGE

DSA T12
DSC 1,0
DAC 4,A ,
OSA KWK,KD2

DC 1,'
SPEC OAC 23, FLAG ON 2 OF OP CODE'

*
* TEST ADD,P AND Q BOTH WITH CHAINED I/A
T13 TF KWK,KD1,, SET WORK AREA
A -KA6,-KA5,, BOTH ADDRESSES CHAINED
BZ **36,,, SHOULD BE ZERO
BTM ERR,**48,, GO TO ERROR ROUTINE
WATY SPE2,,, SPECIAL MESSAGE IF ERROR
BC2 T13,,, LOOP IF SW2 ON
B T14

* ERROR MESSAGE

DSA T13
DSC 1,0
DAC 4,A ,
DSA -KA6,-KA5

DC 1,'
SPE2 DAC 22, P AND Q CHAINED I/A'

*
* TEST ODD/EVEN GATING OF BOTH
* ADDRESSES ON ADD

T14 TF KWK,KD1,, SET WORK AREA
A -ODD1,-EVN2,, I/A P AND Q
BZ **24,,, SHOULD BE ZERO
BTM ERR,**36,, GO TO ERROR ROUTINE
BC2 T14,,, LOOP IF SW2 ON
B T15

02124 00005 -2048
 02125 00001
 02127 00004
 02138 00005 -505J
 02143 00005 -506K
 02144 00001

* ERROR MESSAGE
 DSA T14
 DSC 1,0
 DAC 4,A ,
 DSA -ODD1,-EVN2
 DC 1,'

02146 26 03671 03658
 02158 21 0507N 05050
 02170 46 02194 01200
 02182 17 02990 -2218
 02194 46 02146 00200
 02206 49 02244 00000

*
 * TEST ODD/EVEN GATING WITH ADD
 T15 TF KWK,KD1,, SET WORK AREA
 A -ODD5,-EVN6,, I/A P AND Q
 BZ **24,,, SHOULD BE ZERO
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T15,,, LOOP IF SW2 ON
 B T16

02222 00005 -2146
 02223 00001
 02225 00004
 02236 00005 -507N
 02241 00005 -5050
 02242 00001

* ERROR MESSAGE
 DSA T15
 DSC 1,0
 DAC 4,A ,
 DSA -ODD5,-EVN6
 DC 1,'

02244 26 03671 03658
 02256 21 0506R 0508-
 02268 46 02292 01200
 02280 17 02990 -2316
 02292 46 02244 00200
 02304 49 02342 00000

*
 * TEST ODD/EVEN GATING WITH ADD
 T16 TF KWK,KD1,, SET WORK AREA
 A -ODD9,-EVN0,, I/A P AND Q
 BZ **24,,, SHOULD BE ZERO
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T16,,, LOOP IF SW2 ON
 B T17

02320 00005 -2244
 02321 00001
 02323 00004
 02334 00005 -506R
 02339 00005 -508-
 02340 00001

* ERROR MESSAGE
 DSA T16
 DSC 1,0
 DAC 4,A ,
 DSA -ODD9,-EVN0
 DC 1,'

02342 24 0358N 0363N
 02354 46 02378 01200
 02366 17 02990 -2402
 02378 46 02342 00200
 02390 49 02428 00000

*
 * TEST COMPARE WITH P AND Q I/A
 T17 C -KA1,-KC1,, I/A P AND Q
 BE **24,,, SHOULD BE EQUAL
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T17,,, LOOP IF SW2 ON
 B T18

02406 00005 -2342
 02407 00001
 02409 00004
 02420 00005 -358N
 02425 00005 -363N
 02426 00001

* ERROR MESSAGE
 DSA T17
 DSC 1,0
 DAC 4,C ,
 DSA -KA1,-KC1
 DC 1,'

02428 23 0363- 03647
 02440 24 03651 00099
 02452 46 02476 01200
 02464 17 02990 -2500
 02476 46 02428 00200
 02488 49 02526 00000

*
 * TEST THAT P ADR OF MULT WILL I/A
 T18 M -MA,KM,, I/A P ADR
 C ANS,99,, TEST PRODUCT
 BE **24
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T18,,, LOOP IF SW2 ON
 B T19

02504 00005 -2428
 02505 00001
 02507 00004
 02518 00005 -363-
 02523 00005 -3647
 02524 00001

02526 23 03647 0363-
 02538 24 03651 00099
 02550 46 02574 01200
 02562 17 02990 -2598
 02574 46 02526 00200
 02586 49 02624 00000

02602 00005 -2526
 02603 00001
 02605 00004
 02616 00005 -3647
 02621 00005 -363-
 02622 00001

02624 28 00099 03651
 02636 29 00098 0363-
 02648 24 03647 00097
 02660 46 02684 01200
 02672 17 02990 -2708
 02684 46 02624 00200
 02696 49 02734 00000

02712 00005 -2624
 02713 00001
 02715 00004
 02726 00005 -0098
 02731 00005 -363-
 02732 00001

02734 11 02909 -0001
 02746 46 02854 00400
 02758 45 02782 18117
 02770 49 18000 00000
 02782 34 00000 00102
 02794 38 02905 00100
 02806 39 02913 00100
 02818 46 00654 00400
 02830 36 00000 00500
 02842 49 00000 00000
 02854 24 02904 02909
 02866 46 02878 01400
 02878 46 02782 01200
 02890 49 00654 00000
 02904 00003
 02909 00005
 02910 00001
 02913 00024

* ERROR MESSAGE

DSA T18
 DSC 1,0
 DAC 4,M
 DSA -MA,KM
 DC 1,0

* TEST THAT Q ADR OF MULT WILL I/A

T19 M KM,-MA,, I/A Q ADR
 C ANS,99,, TEST PRODUCT
 BE **24
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T19,, LOOP IF SW2 ON
 B T20

* ERROR MESSAGE

DSA T19
 DSC 1,0
 DAC 4,M
 DSA KM,-MA
 DC 1,0

* TEST THAT Q FLD OF DIVIDE WILL I/A

T20 LD 99,ANS,, I/A Q ADR
 D 98,-MA,, CHECK QUOTIENT
 C KM,97,,
 BE **24
 BTM ERR,**36,, GO TO ERROR ROUTINE
 BC2 T20,, LOOP IF SW2 ON
 B THREW,,, PASS COMPLETE

* ERROR MESSAGE

DSA T20
 DSC 1,0
 DAC 4,D
 DSA 98,-MA
 DC 1,0

* PASS COMPLETE ROUTINE

THREW AM CT,1,, UPDATE PASS COUNT
 BC4 **108
 BNR **24,18117
 B 18000,, GO TO MONITOR
 RCTY
 WNTY CT-4,, TYPE NUMBER PASSES COMPLETE
 WATY PHU
 BC4 T1,, REPEAT PROGRAM IF SW4 ON
 RNCD 0,, LOAD NEXT DECK
 B 0
 C ZR,CT,, SEE IF 1000 PASSES COMPLETE
 BV **12,, RESET OFLO
 BE THREW+48,,
 B T1
 ZR DC 3,0
 CT DC 5,0
 DC 1,0
 PHU DAC 24, PASSES COMPLETE,DT X06

* ERROR ROUTINE NUMBER ONE

02961 00001
 02962 00028
 02990 46 03254 00100
 03002 47 03038 00300
 03014 48 00000 00000
 03026 49 03242 00000
 03038 26 03061 02989
 03050 31 02960 00000
 03062 34 00000 00102
 03074 34 00000 00102
 03086 26 03304 02964
 03098 39 03267 00100
 03110 38 03300 00100
 03122 34 00000 00102
 03134 26 03304 02978
 03146 15 02973 00000
 03157 00001
 03158 39 02967 00100
 03170 34 00000 00101
 03182 33 03300 00000
 03194 38 03300 00100
 03206 34 00000 00101
 03218 33 02979 00000
 03230 38 02979 00100
 03242 31 03581 10000
 03254 42 00000 00000
 03267 00017
 03305 00006

03310 00005
 03312 46 03254 00100
 03324 46 03014 00300
 03336 26 03359 03311
 03348 31 03540 00000
 03360 26 03304 03544
 03372 25 03563 03665
 03384 25 03577 03665
 03396 25 03565 03665
 03408 25 03545 03665
 03420 34 00000 00102
 03432 34 00000 00102
 03444 39 03267 00100
 03456 38 03300 00100
 03468 34 00000 00102
 03480 39 03547 00100
 03492 38 03564 00100
 03504 39 03567 03100
 03516 38 03578 00100
 03528 49 03242 00000
 03540 00006
 03547 00001
 03548 00016
 03564 00014
 03578 00002
 03580 00001

03585 00005 -3658
 03590 00005 -3664

EMS DAC 1, , , ERROR MESSAGE AREA
 DSC 28,0
 ERR BC1 SNOP, , , BYPASS ERROR INDICATION IF SW1 ON
 BNC3 *+36, , , BYPASS HALT IF SW3 OFF
 H , , , IR2 HAS LOC+12 OF ERROR EXIT
 B SNOP-12
 TF *+23,ERR-1, , SET ERROR MESSAGE LOCATION
 TR EMS-1, , , BRING IN ERROR MESSAGE
 RCTY
 RCTY
 TF PHNK-1,EMS+3, , SET ROUTINE LOCATION
 WATY CLYDE
 WNTY PHNK-5, , , TYPE LOCATION
 RCTY
 TF PHNK-1,EMS+17, , MOVE P FLD
 TDM EMS+12, , , SET RM AFTER OPN FLD
 DC 1, , *
 WATY EMS+6, , , TYPE OPERATION
 SPTY
 CF PHNK-5
 WNTY PHNK-5, , , TYPE P FLD
 SPTY
 CF EMS+18
 WNTY EMS+18, , , TYPE Q FLD
 TR KA1-4,10000, , RESTORE DATA FIELDS
 SNOP BB , , , RETURN TO PROGRAM
 CLYDE DAC 17, , /A FAILURE,LOC '
 PHNK DC 6, ,

* ERROR ROUTINE NUMBER TWO
 *
 DC 5,0
 ER2 BC1 SNOP, , , BYPASS ERROR INDICATION IF SW2 ON
 BC3 ERR+24, , , GO TO HALT IF SW3 ON
 TF *+23,ER2-1, , SET ERROR MESSAGE LOCATION
 TR MIC+7, , , BRING IN ERROR MESSAGE
 TF PHNK-1,MIC-3, , SET ROUTINE LOCATION
 TD KEY+1,RM, , SET UP FOR ERRO TYPEOUT
 TD MOU+1,RM
 TD KEY+1,RM
 TD MIC+2,RM
 RCTY
 RCTY
 WATY CLYDE
 WNTY PHNK-5
 RCTY
 WATY MIC
 WNTY KEY
 WATY KEY+3
 WNTY MOU
 B SNOP-12, , , GO RESTORE DATA FIELDS
 DSC 6,0
 MIC DAC 1, ,
 DSC 16,0
 KEY DSC 14,0
 MOU DSC 2,0
 SE DC 1, ,
 * INDIRECT ADDRESS TABLE
 KA1 DSA KD1
 KA2 DSA KD2

03595 00005 -3671
 03600 00005 -363N
 03605 00005 -364-
 03610 00005 -364N
 03615 00005 -3652
 03620 00005 -3665
 03625 00005 -3659
 03630 00005 -3647

03635 00005 -3658
 03640 00005 -3664
 03645 00005 -3671

03647 00002
 03651 00004
 03652 00001
 03658 00005
 03664 00006
 03665 00001

03671 00006
 03672 00001

05008
 05011 00004
 05012 49 01038 00000
 05024 49 01050 00000

05047
 05051 00005 -3671
 05056 00005 -3664
 05057 00001
 05062 00005 -3664
 05063 00002
 05069 00005 -3671
 05070 00001
 05075 00005 -3671
 05080 00005 -3664
 00514

KA3 DSA KWK
 KA4 DSA -KC1
 KA5 DSA -KC2
 KA6 DSA -KC3
 KA7 DSA FLG
 KA8 DSA RM
 KA9 DSA KD1+1
 MA DSA KM

* ADDRESSES FOR CHAINED I/A

KC1 DSA KD1
 KC2 DSA KD2
 KC3 DSA KWK

* DATA

KM DC 2,33
 ANS DC 4,1089
 FLG DC 1,0,, FLAG ZERO
 KD1 DC 6,99999
 KD2 DC 6,-99999
 RM DC 1,,',, RECORD MARK

* WORKING AREA

KWK DC 6,0
 DC 1,,'

* SUB ROUTINE FOR BD TEST

DORG 5008
 DC 4,0502,, FIRST 4 DIGITS OF I/A

BDI B T5+12,,,
 B T5+24,,, OPN OK

* INDIRECT ADDRESSES FOR ODD/EVEN TESTS

DORG 5047
 ODD1 DSA KWK
 EVN6 DSA KD2
 DSC 1,Q
 EVN2 DSA KD2
 DSC 2,Q
 ODD9 DSA KWK
 DSC 1,Q
 ODD5 DSA KWK
 EVN0 DSA KD2
 DEND START

DT X06 80/80 LIST

360007200500360020100500440001200276260005900274250001100000260009000269 -0000
260009500264310000000200260011400274250000000011490001200000 -0001
M4677076# 1-1-0500-0508 -0002
-5080# 1-1-0508-0513 -0003
450053818117491800000000340065400102311000003581390061100100# 0-1-0514-0574 -0004
34000000010K1600539000M9490065400000# 0-1-0574-0610 -0005
M463677076237176727020710049214100634562630# 1-1-0610-0654 -0006
410000-0000-# 0-1-0654-0666 -0007
1-1-0656-0657 -0008
1-1-0661-0662 -0009
4700690008001703312-0714460065400200490075400000# 0-1-0666-0714 -0010
-0654# 1-1-0714-0719 -0011
0N556570022P0707000-00022P0707000-# 1-1-0719-0754 -0012
32000000000-# 0-1-0754-0766 -0013
1-1-0761-0762 -0014
4700790008001703312-0814460075400200490085400000# 0-1-0766-0814 -0015
-0754# 1-1-0814-0819 -0016
0024600007070707000-00022P0707000-# 1-1-0819-0854 -0017
44008780361N49008900000001702990-0914460085400200490094000000# 0-1-0854-0914 -0018
-0854# 1-1-0914-0919 -0019
0M2554600# 1-1-0919-0928 -0020
-0878-361N# 1-1-0928-0938 -0021
1-1-0938-0939 -0022
45009640362-4900976000001702990-1000460094000200490102600000# 0-1-0940-1000 -0023
-0940# 1-1-1000-1005 -0024
0M2555900# 1-1-1005-1014 -0025
-0964-362-# 1-1-1014-1024 -0026
1-1-1024-1025 -0027
430501K036581702990-1074460102600200490110000000# 0-1-1026-1074 -0028
-1026# 1-1-1074-1079 -0029
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-501K-3658# 1-1-1088-1098 -0031
1-1-1098-1099 -0032
1603671-000031036660362N2403664036714601160012001702990-1184# 0-1-1100-1160 -0033
460110000200490121000000# 0-1-1160-1184 -0034
-1100# 1-1-1184-1189 -0035
003590000# 1-1-1189-1198 -0036
-3666-362N# 1-1-1198-1208 -0037
1-1-1208-1209 -0038
1701234000-0490124600000420000-0000-# 0-1-1210-1246 -0039
1-1-1236-1237 -0040
1-1-1241-1242 -0041
4701270008001703312-1294460121000200490133400000# 0-1-1246-1294 -0042
-1210# 1-1-1294-1299 -0043
0M242000022P0707000-00022P0707000-# 1-1-1299-1334 -0044
1603671-969611036710R6904601382012001702990-1406460133400200# 0-1-1334-1394 -0045
490143200000# 0-1-1394-1406 -0046
-1334# 1-1-1406-1411 -0047
0M1540000# 1-1-1411-1420 -0048
-3671# 1-1-1420-1425 -0049
0R690# 1-1-1425-1431 -0050
3201537000002603671036582103671030644601492012001702990-1516# 0-1-1432-1492 -0051
460144400200490154200000# 0-1-1492-1516 -0052
-1444# 1-1-1516-1521 -0053
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-3671-3664# 1-1-1530-1540 -0055
1-1-1540-1541 -0056
26036710365821036710359-4601590012001702990-1614460154200200# 0-1-1542-1602 -0057

490164000000*	0-1-1602-1614 -0058
-1542*	1-1-1614-1619 -0059
0M1000000*	1-1-1619-1628 -0060
-3671-359-*	1-1-1628-1638 -0061
*	1-1-1638-1639 -0062
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490173800000*	0-1-1700-1712 -0064
-1640*	1-1-1712-1717 -0065
0M1000000*	1-1-1717-1726 -0066
-359N-3664*	1-1-1726-1736 -0067
*	1-1-1736-1737 -0068
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460173800200490189400000*	0-1-1798-1822 -0070
-1738*	1-1-1822-1827 -0071
0M1000000*	1-1-1827-1836 -0072
-3671-3664*	1-1-1836-1846 -0073
*	1-1-1846-1847 -0074
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-1894*	1-1-1978-1983 -0078
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-2048*	1-1-2120-2125 -0085
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-505J-506K*	1-1-2134-2144 -0087
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-2146*	1-1-2218-2223 -0091
0M1000000*	1-1-2223-2232 -0092
-507N-5050*	1-1-2232-2242 -0093
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490234200000*	0-1-2304-2316 -0096
-2244*	1-1-2316-2321 -0097
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-2526*	1-1-2598-2603 -0114
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-3664#	1-1-5058-5063	-0152
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